

46. *Diphtheritic Affection of the Mucous Membrane of the Uterus after Delivery; Different Local Complications in Puerperal Fever.*—Dr. ALEX. R. SIMPSON showed to the Edinburgh Obstetrical Society (May 13, 1863) a preparation of a uterus which had been sent him by his friend Dr. Yellowlees, senior assistant in the Morningside Asylum. The patient from whom the preparation had been obtained had been sent into the Asylum as a case of puerperal insanity; but her disease showed itself to be a form of puerperal fever, under which she succumbed a day or two after her admission. At the post-mortem examination, the organs had for the most part been found healthy, but the uterus presented on its inner surface a number of diphtheritic patches, which were very marked at the site of the placenta, especially at points where there were some small placental masses remaining attached to the uterus. Different local complications, as they were all aware, were liable to occur in different epidemics of puerperal fever, or even at different periods of the same epidemic. In Berlin, five years ago, he (Dr. A. R. S.) had had an opportunity of witnessing the post-mortem examination of a great many patients who died of puerperal fever during a lengthened epidemic, and of noticing how a series of them presented morbid appearances which were mainly confined to the peritoneum; and then for a time the cases would nearly all show no peritonitis, but affections of the vascular system, perhaps with secondary deposits in the lungs or other organs; whilst a third set would present chiefly morbid changes in the lymphatics and cellular tissue beside the uterus. In other rarer cases, again, no morbid change was discovered until the uterus was cut into, when, as in the case before them, a series of dingy-gray sloughy patches were seen on the inner surface of the organ; although this form of puerperal affection was sometimes found associated with some of the other local complications. In cases where the interior of the uterus had become the seat of such diphtheritic deposits, any lacerations of the vaginal canal that might have occurred during labour were usually found to present the same gangrenous appearance.—*Ed. Med. Journ.*, Oct. 1863.

## MEDICAL JURISPRUDENCE AND TOXICOLOGY.

47. *Nitrobenzole and Aniline as Poisons.*—Dr. LETHEBY contributes an important essay on nitrobenzole. He remarks that it is on record that Thrasyas, the father of botany, was so skilled in the preparation of drugs, that he knew how to compound a poison which would remain for days in the living body without manifesting its action, and would at last kill by a lingering illness. Theophrastus speaks of this poison, and says its force could be so modified as to occasion death in two, three, or six months, or even at the end of a year or two years. The writings of Plutarch, Tacitus, Quintilian, and Livy are full of instances of what seem to be this kind of slow and occult poisoning. In fact, until recently there had been a common belief among the unlearned that a skilful poisoner could so apportion the dose and combinations of certain subtle agents that he could destroy the life of his victim with certainty, and at the same time measure his allotted moments with the nicest precision, and defy the utmost skill of the physician and the chemist. Even so late as the sixteenth century, this belief was shared by the learned of the medical profession.

The belief so long held is, according to Dr. Letheby, to an extent true. In every manufactory where nitrobenzole and aniline are prepared on a large scale, the peculiar narcotic effects of these poisons are often observed. The vapours escaping into the atmosphere are breathed by the workmen, and cause distressing headache and a heavy, sleepy sensation. For the most part, these effects are not serious, but are quickly relieved by fresh air and a mild stimulant, as a glass of brandy and water. Now and then, however, the workmen, from carelessness in their habits, expose themselves to the action of comparatively large quantities of these poisons, and then the effects are most dangerous. Two fatal cases of poisoning by nitrobenzole have been referred to Dr. Letheby by the

coroner for investigation during the last two years, and in both instances they were the results of careless manipulation. In one case a man, forty-three years of age, spilt a quantity of the liquid over the front of his clothes, and he went about for several hours in an atmosphere saturated with the poison. In the other a boy, aged seventeen years, received a little of the liquid into his mouth while sucking at a siphon. The effects were nearly the same in both cases, notwithstanding that in one the poison was inhaled and in the other it was swallowed. For some time there was no feeling of discomfort beyond that of drowsiness; gradually, however, the face became flushed, the expression stupid, and the gait unsteady—the sufferers had the appearance of persons who had been drinking. Little by little the stupor increased, until it passed into profound coma, and in this condition they died. The progress of each case was much the same as that of slow intoxication, excepting that the mind was perfectly clear until the coming on of the fatal coma. This was sudden, like a fit of apoplexy; and from that moment there was no return of consciousness or of bodily power—the sufferer lay as if in a deep sleep, and died without a struggle. The duration of each case was nearly the same; about four hours elapsed from the time of taking or inhaling the poison to the setting in of the coma, and the coma lasted for about five hours.

Previous to death there were no appearances of convulsions, but rather of narcotism and apoplexy. The face was flushed; the lips were livid; the superficial vessels of the body, especially about the throat and arms, were gorged with blood; the dependent parts were turgid; the blood was everywhere black and fluid; the lungs were somewhat congested; the cavities of the heart were full; the liver was of a purple colour, and the gall-bladder distended with bile; the brain and its membranes were turgid, and in the case of the man there was much bloody serosity in the ventricles. Analysis discovered the existence of nitrobenzole in the brain and stomach, and also of aniline.

These effects were so remarkable, that Dr. Letheby determined to examine them still further by experiments on domestic animals. Dogs and cats were submitted to the action of from thirty to sixty drops of nitrobenzole which had been well washed with dilute sulphuric acid and water, to free it from every trace of aniline. The poison was generally administered by pouring it into the mouths of the animals, but sometimes it was given by means of an oesophagus-tube. When the nitrobenzole had come into contact with the mouth, it always caused discomfort, as if from unpleasant taste, and there was profuse salivation. Its local action on the stomach, however, was never very great, for there was rarely any vomiting until the setting in of nervous symptoms, and this seemed to be due to sympathy rather than to any local irritation of the stomach. Two classes of effects were clearly observed; there was either the rapid coma which characterized the operation of the poison on the human subject, or there was a slow setting in of paralysis and coma, after a long period of inaction.

When the effects were speedily fatal, the animal was soon seized with giddiness and an inability to walk. The weakness of the limbs first appeared in the hind extremities, and was manifested by a difficulty in standing; but very soon it extended to the fore legs, and then to the head and neck. There was complete loss of voluntary power. The animal lay upon its side, with its head drawn a little back, and with its limbs in constant motion, as if in the act of walking or running. The muscles of the back were occasionally fixed in spasm, and every now and then the animal would have a sort of epileptic fit. It would look distressed, would howl as if in pain, and would struggle violently. After this it would seem exhausted, and would lie powerless. The pupils were widely dilated, the action of the heart was tumultuous and irregular, and the breathing was somewhat difficult. For some time, however, the animal retained its consciousness, for it would look up and wag its tail when spoken to; but suddenly, and often at the close of a fit, it would become comatose—the eye would remain open, but the conjunctiva would be insensible to touch, and the movements of the limbs would nearly cease; the breathing would be slow and somewhat stertorous, and the animal would appear as if it were in a deep sleep. This condition would last until it died, the time of death varying from twenty-five minutes to twelve hours after the administration of the poison.

When the action of the poison was slower, there was often no visible effect for hours or days. At first there was always a little discomfort from the taste of the poison, but this soon subsided, and then for a day or more the animal appeared to be in perfect health. It would go about as usual, would be quite lively in its movements, would eat its food heartily, and in fact would seem to be in no way affected by the poison. Suddenly, however, it would look distressed, it would have an attack of vomiting, and it would tumble over in an epileptic fit. When this had subsided, it was generally found that the animal was weak, or even quite paralyzed in its hind extremities; and after two or three of such attacks, the loss of voluntary power would extend to the fore limbs. The animal would lie upon its side perfectly helpless, and then the progress of the case was much the same as that already described, except that it was considerably slower. Consciousness, for example, would be retained for days after the animal was paralyzed, and, although it was quite unable to stand, it would take food and drink when they were put into its mouth. The condition in which it lay was most distressing; the look was anxious and full of fear; the limbs were in constant motion; and every now and then there would be a violent struggle, as if the animal was in a fit, or was making fruitless efforts to rise. This would last for days, and then there would be either a gradual restoration of voluntary power with complete recovery, or death from exhaustion. The time that elapsed from the administration of the poison to the coming on of the first symptoms—namely, the epileptic fit, varied from nineteen hours to seventy-two, in most cases it was about two days, and the time of death four days.

In commenting on these facts, Dr. Letheby dwells on their immense importance to the medical jurist and physiologist. They indicate, he thinks, a reducing power in the animal body by the conversion of nitrobenzole into aniline. He has endeavoured to ascertain whether this is due to a living or a dead process; and he finds that while contact with dead matter does convert nitrobenzole into aniline, there is a great similarity of action between the physiological effects of nitrobenzole and of aniline. The post-mortem appearances are also much the same. He adds, that not only is there a probable conversion of nitrobenzole into aniline in the living body, by a process of reduction, but that there is also undoubtedly a change of an opposite character going on upon the surface of the body, whereby the salts of aniline are oxidized, and converted into mauve or magenta purple. The author gives a case of this character, in which a boy, aged sixteen, was brought into the London Hospital in a semi-comatose condition, owing to his having breathed an atmosphere charged with the alkaline vapour while scrubbing out the inside of an aniline vat. He was suddenly seized with giddiness and insensibility. After passing through stages like those of intoxication he rallied, but it was observed that his face had a purple hue, and that the lips and lining membrane of his mouth and his nails had the same purple tint. The next day even he had the hue of a person suffering from Asiatic cholera.—*Brit. and For. Med.-Chir. Rev.*, Oct. 1863, from *Proceedings of the Royal Soc.*, part 3, 1863.

48. *Bichromate of Potassa as a Poison.*—One of the most important papers on toxicology published within the last few years is by MM. A. Chevalier and Dr. Bécourt, on bichromate of potassa. The report of these investigators, though not official, is of great public, not less than of scientific interest. It conveys to us a series of new facts in regard to a particular poisonous salt, and it proves that the effects of this poison tell on certain branches of industry, producing wholesale mischiefs.

By an accident, one of the reporters met with a man who was engaged in a manufactory of chromate of potassa, and who was suffering from a peculiar ulceration of the face; from this case they obtained an idea that the manufacture was attended with serious mischiefs, but they failed to obtain from the man any very satisfactory evidence.

At last, from the director of a manufactory at Graville, they obtained a series of facts from which they learned that the workers were subjected to disease. In transforming the neutral chromate of potassa by means of acid into bichromate, the vapour arising carries with it an infinity of pulverized molecules